

NEW COMBINATIONS IN *ARCTOSTAPHYLOS*
(ERICACEAE): ANNOTATED LIST OF
CHANGES IN STATUS

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ABSTRACT

A total of 53 names in *Arctostaphylos* are reviewed, 16 being synonyms. Of the remaining 37, designated hybrids account for 13 names: *A. × benitoensis* Roof, *A. × bracteata* T. J. Howell, *A. × cinerea* T. J. Howell, *A. × coloradensis* Rollins, *A. × helleri* Eastw., *A. × jepsonii* Eastw., *A. × laxiflora* Heller, *A. × oblongifolia* T. J. Howell, *A. × pacifica* Roof, *A. × parvifolia* T. J. Howell, *A. × strigosa* T. J. Howell (and also *A. × campbellae* Eastw. and *A. × media* Greene that had earlier achieved this status). Reductions from species to subspecies include 3 names: *A. sonomensis* Eastw., *A. montaraensis* Roof, and *A. knightii* Gankin & Hildreth; reductions from species to form comprise 5 names: *A. acutifolia* Eastw., *A. adenotricha* Löve, Löve & Kapoor, *A. candidissima* Eastw., *A. setosissima* Eastw., and *A. tracyi* Eastw.; and the remaining 16 names are downward shifts in infraspecific rank, mainly from variety to form.

Having studied the genus *Arctostaphylos* over a period of 30 years, I perceive difficulties for the non-specialist, but none greater than the numerous names existing at more than one, often vaguely defined, rank, mostly proposed at the species level, many of them synonyms or based on local forms or hybrid individuals. This paper deals mainly with reassignments in rank for validly published names that have escaped evaluation. A brief exposition of the logic guiding these taxonomic dispositions is essential. The taxonomic category variety has been used ambiguously in *Arctostaphylos*. It has been applied indiscriminately, on the one hand, to major geographic taxa with substantially allopatric distributions (that zoologists have long recognized as subspecies) and, on the other hand, to minor forms with locally sympatric or largely intrapopulational distributions (known to zoologists as morphs). There is a strong traditional usage of varietal rank in botany in lieu of subspecies, but the International Code recognizes variety as a rank intermediate between subspecies and form. Within *Arctostaphylos*, however, subspecies serves well as the category for variants of the species with more or less discrete geographic distributions, whereas form is the obvious choice for intrapopulational morphs (many species are dimorphic; e.g., hairy form/smooth form). Variety is then a superfluous category in the genus.

Examples of geographically discrete subspecies are well delineated in *A. hookeri*, *A. manzanita*, and *A. viscida* (Wells 1968) and more

complexly so in *A. glandulosa* and *A. tomentosa* (Wells 1987). Intrapopulational forms, based on minute indument characters, have received an inordinate amount of attention in the wide-ranging species, *A. uva-ursi*, predominantly in the northern part of North America and not in Eurasia. Comparable variation exists in the center of diversity for the genus in California, but the plethora of species and subspecies there inhibits the indulgence of naming all of the individual variation within populations; a beginning has been made in the relatively wide-ranging species, *A. glandulosa* (Wells 1987). The sympatric forms of *A. uva-ursi* include the following taxa named at the varietal or even subspecific level: var. *adenotricha* Fern. & Macbr., var. *coactilis* Fern. & Macbr., subsp. *longipilosa* Packer & Denford, subsp. *stipitata* Packer & Denford, and the nominate subsp. and var. *uva-ursi* in part of its North American range. In part because the pubescence forms serve as markers for ploidy level, many of them coexist in the same populations; *adenotricha* is diploid, *stipitata* and *uva-ursi* tetraploid, and *coactilis* and *longipilosa* variable (Packer and Denford 1974). On the other hand, the pubescence types intergrade and some phenotypic plasticity of indument in response to ecological factors has been observed (Rosatti 1987). The medley of intrapopulational variation within North American *A. uva-ursi* is most appropriately treated at the taxonomic level of form.

Another problem in *Arctostaphylos* is the occurrence of localized hybrid swarms or individuals at some points of sympatry for certain species. Unfortunately, some botanists with an eye for differences have collected hybrid individuals that later became the types of new taxa, invariably at the species level. A well known example is the group of taxa named at Waldo, Oregon, by T. J. Howell (1901). Waldo was a mining district of diverse lithology (serpentinite, conglomerate, sands, basalt-gabbro), much disturbed and open to invasion by manzanitas, chiefly *Arctostaphylos viscida* ssp. *pulchella* (on the serpentine) and *A. canescens* (on non-serpentine soils). The circumstantial evidence suggests the possibility of hybridization between these two species. Of the four Waldo taxa named as species by Howell, *A. bracteata* and *A. strigosa* are quite similar to *A. canescens* but differ slightly in the direction of *A. viscida*; the other two, *A. cinerea* and *A. oblongifolia*, are intermediate between *A. canescens* and *A. viscida*. Obvious hybrid swarms still existed at the Waldo site in the period 1960–1967, when I visited the area in search of Howell's taxa, but I was unable to discern any valid populations corresponding to his descriptions or to his specimens at Eugene (ORE). Fortunately, the populations of manzanitas at Waldo, as well as others in an area of several hundred square miles in southwestern Oregon, were analyzed biosystematically by Gottlieb (1968). Using hybrid index and scattered diagrams, Gottlieb quantitatively defined

the existence of hybrid swarms between *A. canescens* and *A. viscida* at Waldo and elsewhere in the surrounding region. He concluded that Howell's names were based on individual variants selected from hybrid swarms (Gottlieb 1968). In order to avoid arbitrary assignments to synonymy, as has been done with *A. bracteata* and *A. strigosa* under *A. canescens* by Adams (1940), reduction to hybrid status (e.g., *A. × bracteata* T. J. Howell) should suffice to neutralize the four superfluous names from the Waldo type locality. Proliferation of names for hybrid individuals (as done to excess in *Quercus*) should be avoided in *Arctostaphylos*, however. Only published names that already clutter the literature deserve this fate. Species of hybrid origin with substantial, stable populations (often ecologically isolated from the putative parental species) ought to be sustained as valid species; arbitrary use of hybrid designations for such well defined entities would wreak extensive havoc on the established taxonomy of the genus, inasmuch as the pattern of variation throughout *Arctostaphylos* is reticulate in nature.

ANNOTATED LIST OF PROPOSED CHANGES IN STATUS FOR
ARCTOSTAPHYLOS TAXA

- A. acutifolia* Eastw. See *A. patula* forma *acutifolia*.
- A. adenotricha* (Fern. & Macbr.) Löve, Löve & Kapoor. See *A. uva-ursi* forma *adenotricha*.
- A. × **benitoensis** Roof (pro sp.), stat. nov. Basionym: *A. benitoensis* Roof, Four Seasons 5(4):5–8, 1978. This taxon appears to be *A. pungens* H.B.K.; introgressed with few traits of *A. glauca* Lindl. If *A. × benitoensis* constituted a coherent entity, it would be extremely close to *A. parryana* Lemmon, and might be placed in synonymy with that species.
- A. bowermanae* Roof, Four Seasons 5(4):15–18, 1978, from the north side of Mt. Diablo, is certainly *A. manzanita* Parry and possibly synonymous with subsp. *manzanita*.
- A. × **bracteata** T. J. Howell (pro sp.), stat. nov. Basionym: *A. bracteata* T. J. Howell, Fl. N.W. Amer., 417, 1901. This is one of several hybrid intergrades between *A. canescens* Eastw. and *A. viscida* Parry (closer to the former), named as species by T. J. Howell, as elucidated by Gottlieb (1968) at the type locality near the site of Waldo, Oregon.
- A. × **campbellae** Eastw. (pro sp.). Based on *A. campbellae* Eastw., Leaf. W. Bot. 1:75, 1933. Probably *A. tomentosa* (Pursh) Lindl. subsp. *crustacea* (Eastw.) Wells, slightly introgressed with few traits of *A. glauca* Lindl. (Wells 1987).
- A. candidissima* Eastw. See *A. canescens* forma *candidissima*.
- A. **canescens** Eastw. subsp. **canescens** forma **candidissima** (Eastw.) Wells, comb. et stat. nov. Basionym: *A. candidissima* Eastw.,

Leaf. W. Bot. 3:124, 1942. A variably white-downy extreme form of *A. canescens* subsp. *canescens*.

- A. *canescens*** Eastw. subsp. ***sonomensis*** (Eastw.) Wells, comb. et stat. nov. Basionym: *A. sonomensis* Eastw., Leaf. W. Bot. 1:78, 1933. A consistently different glandular race of *A. canescens* with a wide but segregated (allopatric) distribution relative to the nominate subspecies (Knight 1985). Although subsp. *sonomensis* occurs on volcanic and other rocks, it appears to be restricted to serpentinite at the northern limits of its known range, as on the summit of Horse Mountain, Humboldt Co. (unpublished collection). Perhaps both glandulosity of pedicels and fruit and serpentine tolerance derive from some genes of *A. viscida* subsp. *pulchella* having introgressed into *A. canescens* subsp. *canescens* at some point in time and place.
- A. chaloneorum* Roof, Four Seasons 5(4):2-5, 1978, falls within the range of variation of *A. pungens* H.B.K. as does *A. benitoensis* Roof and *A. pseudopungens* Roof, all published in 1978. In this interlude of critical splitting, Roof departed from his prior course of lumping even distinct species such as *A. manzanita* Parry under *A. pungens* in an extraordinarily broad conception of the *A. pungens* "alliance" (Roof 1976). Later, he reduced *A. chaloneorum* as a subspecies under *A. pungens* (Roof 1979), a consistency that he did not extend to *A. benitoensis* and *A. pseudopungens*. Pending biosystematic elucidation of these populations, synonymy under *A. pungens* H.B.K. is appropriate for *A. chaloneorum* and *A. pseudopungens*.
- A. × *cinerea*** T. J. Howell (pro sp.), stat. nov. Basionym: *A. cinerea* T. J. Howell, Fl. N.W. Amer. 416, 1901. Another, more intermediate, individual variant in the well-known Waldo hybrid swarm, *A. canescens* × *A. viscida* (cf. Gottlieb 1968).
- A. × *coloradensis*** Rollins (pro sp.), stat. nov. Basionym: *A. coloradensis* Rollins, Rhodora 39:463, 1937. This name is based on intermediate individuals in the hybrid swarm *A. uva-ursi* × *A. patula* on the Uncompahgre Plateau of western Colorado. Remarkably, the same cross is taking place in northwestern Montana (ridge north of Lake Mary Ronan, Lake Co.; Lesica and Wells 1986) with some individuals matching *A. × coloradensis* (*A. patula* was previously unknown there, but *A. uva-ursi* is sympatric, being widespread in the Rocky Mountains). Other instances of this polytopic hybridization may come to light by surveying the wide distribution of *A. patula* forma *platyphylla*.
- A. *columbiana*** Piper forma ***setosissima*** (Eastw.) Wells, comb. et stat. nov. Basionym: *A. setosissima* Eastw., Leaf. W. Bot. 1:78, 1933. An intensely setose form of the variably hairy species that occurs locally with the nominate form, especially in southern Mendocino Co.

- A. columbiana** Piper forma **tracyi** (Eastw.) Wells, comb. et stat. nov. Basionym: *A. tracyi* Eastw., Leafl. W. Bot. 1:79, 1933. A local form lacking setose hairs, except on the bracts (as on the type); all degrees of setosity can be found around Big Lagoon, Humboldt Co., the type locality of *A. tracyi*. Eastwood named it on the basis of the smooth-form specimens collected by Tracy. Both forma *tracyi* and forma *setosissima* occur as intrapopulational variants and should be treated as forms.
- A. edmundsii** J. T. Howell forma **parvifolia** (Roof) Wells, stat. nov. Basionym: *A. edmundsii* var. *parvifolia* Roof, Leafl. W. Bot. 9: 191, 1961. A localized and intrapopulational, small-leaved form of possible horticultural value.
- A. glauca** Lindl. forma **eremicola** (Jeps.) Wells, stat. nov. Basionym: *A. glauca* var. *eremicola* Jeps., Madroño 1:78, 1922. This epithet is available for a decumbent form of *A. glauca* that layers; the spreading form occurs on the desert slopes of the Transverse and Peninsular Ranges. Layering from lower branches is a widespread trait in *Arctostaphylos*, however, and there is no need to formalize these vegetative forms by naming them unless, perhaps, there is horticultural potential.
- A. glauca** Lindl. forma **puberula** (J. T. Howell) Wells, stat. nov. Basionym: *A. glauca* var. *puberula* J. T. Howell, Leafl. W. Bot. 2:70, 1938. This local variant in indument deserves a rank no higher than form.
- A. × helleri** Eastw. (pro sp.), stat. nov. Basionym: *A. helleri* Eastw., Leafl. W. Bot. 4:148, 1945. A putative hybrid, sympatric with both parents: *A. viscida* Parry × *A. myrtifolia* Parry on the Ione formation, a substratum to which the latter is narrowly endemic. Eastwood named it from an individual specimen collected by Heller (in *Arctostaphylos*, a treacherous undertaking). Surprisingly, this cross has escaped biosystematic attention, whereas the unnamed analogous cross, *A. viscida* × *A. nissenana* Merriam, has been well analyzed (Schmid et al. 1968).
- A. imbricata** Eastw. subsp. **montaraensis** (Roof) Wells, comb. et stat. nov. Basionym: *A. montaraensis* Roof, Four Seasons 2(3):6–16, 1967. Aside from its tall, erect habit, this taxon is similar to the creeping or mound-forming *A. imbricata* Eastw.; also, the nascent bracts differ subtly in shape, subsp. *montaraensis* having more acuminate tips. Although the differences are relatively minor, the main populations of the two taxa are segregated on two different mountains south of San Francisco, subsp. *imbricata* on San Bruno and subsp. *montaraensis* on Montara Mountain. At one spot on San Bruno, the two taxa coexist, indicating that they are genetically distinct (also shown in common gardens, as at Tilden); at San Bruno there are only a few individuals of subsp. *montaraensis* growing with a large population of subsp.

imbricata, whereas on Montara Mountain, closer to the Pacific coast, there are large populations of erect subsp. *montaraensis* but none of prostrate subsp. *imbricata*. The mainly allopatric distribution argues for a rank of subspecies.

- A. intricata* T. J. Howell, Fl. N.W. Amer., 416, 1901, is a later synonym for *A. glandulosa* Eastw. (1897); cf. Wells (1987).
- A. × **jepsonii** Eastw. (pro sp.), stat. nov. Basionym: *A. jepsonii* Eastw., Leafl. W. Bot. 1:110, 1934. The existence of local hybrid zones between the elevationally segregated *A. patula* Greene and *A. viscida* subsp. *mariposa* (Dudley) Wells has been well documented (Epling 1947, Dobzhansky 1953). The earliest formal recognition of the intergradation was described as *A. mariposa* Dudley var. *bivisa* Jepson, Madroño 1:79, 1922. An appropriate name for the hybrid *A. patula* × *A. viscida* subsp. *mariposa* would be *A. × jepsonii* Eastw. because it honors the prior author and was proposed at the species level.
- A. knightii* Gankin & Hildreth. See *A. nevadensis* subsp. *knightii*.
- A. × **laxiflora** Heller (pro sp.), stat. nov. Basionym: *A. laxiflora* Heller, Leafl. W. Bot. 4:148, 1945. This rare hybrid with very showy panicles stems from the putative cross *A. manzanita* Parry × *A. truei* W. Knight, the two most plausible parents near the type locality in Butte Co. on the lower slope of the Sierra Nevada.
- A. manzanita* Parry subsp. *bakeri* (Eastw.) Wells. Synonym for *A. bakeri* Eastw., which is now upheld as a distinct species.
- A. × **media** Greene (pro sp.). Basionym: *A. media* Greene, Pittonia 2:171, 1891. The well known hybrid *A. uva-ursi* (L.) Spreng. × *A. columbiana* Piper has been studied most recently by Kruckeberg (1977). He has uncovered a parallel cross (*A. nevadensis* A. Gray × *A. columbiana*) that produces a phenotype similar to *A. × media* (as might be expected from the similarity of *A. nevadensis* and *A. uva-ursi*). Fortunately, no formal name has been proposed for this very similar hybrid.
- A. montaraensis* Roof. See *A. imbricata* subsp. *montaraensis*.
- A. **nevadensis** A. Gray subsp. **knightii** (Gankin & Hildreth) Wells, comb. et stat. nov. Basionym: *A. knightii* Gankin & Hildreth, Four Seasons 3(3):23–24, 1970. My observations of this taxon in the field indicate a very close similarity to *A. nevadensis* A. Gray (and this is also apparent on the type specimen), except for variably developed lignotubers that are most consistently present at the type locality and nearby areas of Humboldt Co. In Del Norte Co., in the vicinity of Gasquet, there are extensive populations of *A. nevadensis* that mostly lack lignotubers; at Humboldt Flat in the hills above Gasquet, I noted as long ago as 1967 that some *A. nevadensis* had small basal burls, but attributed this to hybridization with sympatric *A. glandulosa*

- Eastw. forma *cushingiana* (the latter as abundant as burl-free *A. nevadensis*). Since lack of consistency as to the presence of lignotubers is well known within other species of *Arctostaphylos* (e.g., *A. patula* Greene), an infraspecific rank is indicated. In view of the substantial allopatric populations in Humboldt Co., a rank of subspecies seems appropriate.
- A. nitens* Eastw., Leaf. W. Bot. 4:149, 1945, appears from the type to be part of the *A. glandulosa* complex (Wells 1987), but along with other collections from southwestern Oregon deserves populational analysis in the field to determine consistency of the described traits, presence or absence of burls (uncertain), etc. Previous experience in this region indicates an extremely low probability of taxonomic significance for this name.
- A. × oblongifolia** T. J. Howell (pro sp.), stat. nov. Basionym: *A. oblongifolia* T. J. Howell, Fl. N.W. Amer. 416, 1901. Another name based on the hybrid swarm at Waldo, Oregon: *A. canescens* × *A. viscida*, and morphologically intermediate between the two parental species.
- A. obtusifolia* Piper, Bull. Torrey Bot. Club 29:642, 1902, is synonymous with *A. patula* forma *platyphylla* (*A. Gray*) Wells, q.v.
- A. × pacifica** Roof (pro sp.), stat. nov. Basionym: *A. pacifica* Roof, Leaf. W. Bot. 9:217, 1962. Although it bears the stamp of an *A. uva-ursi* lineage, this tiny population on San Bruno Mountain has isofacial stomatal distribution and crown-sprouts from lignotubers. Past hybridization between *A. uva-ursi* (L.) Spreng. and *A. glandulosa* Eastw. is the putative ancestry, both parental species extant on San Bruno; non-sprouting forms of *A. uva-ursi* formerly grew near the putative hybrid but were locally eliminated by a relatively recent fire, while *A. × pacifica* re-sprouted under the observation of Knight, Raiche, Roof and others (see also the sprouting *A. uva-ursi* forma *suborbiculata*).
- A. parryana* Lemmon var. *pinetorum* (Rollins) Wiesel. & Schreib.
See *A. pinetorum*.
- A. × parvifolia** T. J. Howell (pro sp.), stat. nov. Basionym: *A. parvifolia* T. J. Howell, Fl. N.W. Amer. 416, 1901. Unlike the group of taxa named from the hybrid swarms at Waldo, *A. parvifolia* was based on collections from mountains west of Andersons, Oregon, a considerable distance north and west of Waldo. The type specimen has rather small green leaves, not gray as in the Waldo taxa, which are derived from the cross *A. viscida* (glaucous leaves) × *A. canescens* (gray, strigose-canescens leaves). The simple, racemose inflorescence and small, green leaves suggest that one parent was *A. nevadensis* *A. Gray*; the white-hairy ovary and pedicels could be derived either from *A. glandulosa* forma *cushingiana* (Eastw.) Wells or *A. canescens*.

Hybrid swarms of *A. nevadensis* × *A. glandulosa* and individuals resembling descriptions and type of *A. parvifolia* (with or without a burl) are still being generated at Humboldt Flat, Del Norte Co. On the other hand, Gottlieb (1968) decided that *A. parvifolia* stems from the same *A. viscida* cross as the Waldo hybrids.

- A. patula** Greene forma **acutifolia** (Eastw.) Wells, comb. et stat. nov. Basionym: *A. acutifolia* Eastw., Leafl. W. Bot. 3:125, 1942. A poorly known taxon, apparently collected only near the type locality, Log Springs Ridge in southwestern Tehama Co. Possibly, Eastwood named it as a counterpoint in leaf shape to *A. obtusifolia* Piper, a taxon that she accepted as a species (Eastwood 1934), even though the latter is indistinguishable morphologically from *A. patula* forma *platyphylla*. Examination of the type of *A. acutifolia* at CAS shows that it, too, is very close to *A. patula*, but differs in having glandular-hairy pedicels and stipitate-glandular fruit; the coalesced nutlets are seen also in *A. patula* forma *coalescens*, as described next.
- A. patula** Greene forma **coalescens** (W. Knight) Wells, stat. nov. Basionym: *A. patula* var. *coalescens* W. Knight, Four Seasons 7(1):20–21, 1984. The only distinguishing character is a tendency toward partial coalescence of the normally separable nutlets; coherence of nutlets occurs sporadically in the North Coast Range sector of the range of *A. patula* and may be expected elsewhere. Inasmuch as it has been formally named, it is retained as a form, but an occasional tendency toward coalescence of nutlets is a commonly observed variation in the genus, and ought not to be named; consistent fusion as a solid, indehiscent stone, on the other hand, is an excellent character.
- A. patula** Greene forma **platyphylla** (A. Gray) Wells, stat. nov. Basionym: *A. pungens* var. *platyphylla* A. Gray, Syn. Fl. N. Amer. 2:28, 1878; *A. patula* subsp. *platyphylla* (A. Gray) Wells, Madroño 19:203, 1968. Recent field studies indicate that many populations of *A. patula* commonly lack basal burls (lignotubers) in the northern part of the Sierra Nevada and in many parts of the North Coast Range, thus greatly reducing the allopatry of burl-forming *A. patula*. Since the greater part of the range of *A. patula*, from the northern Sierras and Cascades eastward disjunctly to the Rockies of Montana, Utah and Colorado and southward in Nevada, Arizona and Baja California, is occupied by populations that seem to *lack* the burl (forma *platyphylla*), attention should be focused on the actual extent of burl-forming populations (forma *patula*) in the Sierra Nevada and North Coast Range and whether there is segregation for the burl trait there. Considering that presence or absence of the burl

is the only distinguishing character and that this trait has not been well documented in the putative burl-forming populations, it seems best to recognize this difference as a form.

- A. pinetorum* Rollins, *Rhodora* 39:462, 1937, and *A. parryana* var. *pinetorum* (Rollins) Wiesel. & Schreiber, *Madroño* 5:46, 1939, are synonyms for *A. patula* forma *platyphylla*.
- A. pseudopungens* Roof, *Four Seasons* 5(4):9–11, 1978, is a misnomer because, like *A. chaloneorum* Roof, it is merely an outlying population of *A. pungens* H.B.K. It is apparent from the late James Roof's extensive writings (1978) that he misconceived *A. pungens* as being tetraploid on the basis of the somatic count ($2n=26$) reported in Munz (1959), when, in fact, it is mostly diploid, as is further confirmed by Niehaus' counts on *A. pseudopungens* ($n=13$), reported by Roof (1978). Neither *A. pseudopungens* nor *A. chaloneorum* are sufficiently different from *A. pungens* to require a formal name, though Roof is undoubtedly correct in his astute observation that both are introgressed (limitedly) by certain traits of *A. glauca* Lindl. The name *A. × benitoensis* Roof suffices to designate this introgression formally.
- A. pulchella* T. J. Howell, *Fl. N.W. Amer.* 416, 1901, is synonymous with *A. viscida* Parry subsp. *pulchella* (T. J. Howell) Wells, *Madroño* 19:204, 1968.
- A. serpentinicola* Roof, *Four Seasons* 5(4):12–15, 1978, is synonymous with *A. viscida* subsp. *pulchella* (T. J. Howell) Wells. In publishing this name, Roof (1978) neither justified the status of full species, distinct from *A. viscida* Parry, nor in any way distinguished *A. serpentinicola* from the prior name, *A. viscida* subsp. *pulchella*. In examining Howell's type of *A. pulchella*, Roof (1978:12) apparently did not observe that the pedicels are glandular-hispidulous and the ovaries stipitate-glandular, as was noted by me when I visited at ORE in 1967. Roof correctly noted that there are two fragments, one a sterile branch of *A. viscida*, the other a flowering branch that can be diagnosed, both obtained in mountains west of Andersons, Josephine Co., Oregon, April 1886 (T. J. Howell's handwriting). Finally, an affinity for serpentinite bedrock is also shown by the smooth-fruited *A. viscida* subsp. *viscida* of the Sierra Nevada, but it is not restricted to serpentinite, being widespread on the primarily granitic terrane. Thus, the correct name for the viscid-fruited, serpentiniculous race of the North Coast Range and Siskiyou Mountains, north into southwestern Oregon, is *A. viscida* Parry subsp. *pulchella* (T. J. Howell) Wells.
- A. setosissima* Eastw. See *A. columbiana* forma *setosissima*.
- A. sonomensis* Eastw. See *A. canescens* subsp. *sonomensis*.
- A. stanfordiana* Parry forma *decumbens* Wells, stat. et nom. nov.

Basionym and holotype: as in *A. stanfordiana* var. *repens* Roof, Four Seasons 4(2):16–17, 1972. Because of the horticultural possibilities of this exceptionally beautiful species, this decumbent form deserves recognition. It should be noted that wherever manzanitas branch to the base, the lower branches layer (take root) if they contact the ground, so that there may be no end to the naming of decumbent forms in the genus. In this instance, the shrub is *not* repent or prostrate. Furthermore, the epithet *repens* should be avoided in this genus, as it has been used previously to designate another taxon, *A. × repens* (J. T. Howell) Wells, based on *A. cushingiana* Eastw. forma *repens* J. T. Howell (Leafl. W. Bot. 4:161, 1945).

- A. × **strigosa** T. J. Howell (pro sp.), stat. nov. Basionym: *A. strigosa* T. J. Howell, Fl. N.W. Amer. 417, 1901. Yet another name proposed by Howell for a variant closer to *A. canescens* in the hybrid swarm between the latter and *A. viscida* at Waldo, Oregon (cf. Gottlieb 1968).

A. tracyi Eastw. See *A. columbiana* forma *tracyi*.

- A. **uva-ursi** (L.) Spreng. forma **adenotricha** (Fern. & Macbr.) Wells, stat. nov. Basionym: *A. uva-ursi* var. *adenotricha* Fern. & Macbr., Rhodora 16:213, 1914. A largely intrapopulational, minutely glandular form, widely sympatric in northern North America and in the Rocky Mountains with nominate forma *uva-ursi*. The latter, eglandular form extends farthest north in the Arctic and has become circumboreal through Eurasia, where the species is relatively uniform and tetraploid ($n=26$). Counts on forma *adenotricha* have been consistently diploid (Packer and Denford 1974).

- A. **uva-ursi** (L.) Spreng. forma **coactilis** (Fern. & Macbr.) Wells, stat. nov. Basionym: *A. uva-ursi* var. *coactilis* Fern. & Macbr., Rhodora 16:212, 1914. Another intrapopulational form commonly present with forma *adenotricha* and forma *uva-ursi* in North America, differing from the former in being eglandular and from the latter in having the twigs and rachises minutely tomentulose; ploidy level is variable, mostly diploid. Forma *coactilis* alone extends south along the Pacific coast to California, where it encounters a number of other species of the genus, possibly giving rise to several local forms through hybridization. The named forms are listed below.

- A. **uva-ursi** (L.) Spreng. forma **leobreweri** (Roof) Wells, stat. nov. Basionym: *A. uva-ursi* var. *leobreweri* Roof, Changing Seasons 1(2):26, 1980. This is one of several slightly differing forms (two have been named) that occur as separate populations on San Bruno Mountain, just south of San Francisco; all but *leobreweri* (glabrescent twigs) have indument similar to forma *coactilis*, and are scarcely distinguished by leaf shape and habit. Forma

leobreweri has incipient lignotubers; it propagates clonally by suckering.

- A. uva-ursi** (L.) Spreng. forma **longipilosa** (Packer & Denford) Wells, stat. nov. Basionym: *A. uva-ursi* subsp. *longipilosa* Packer & Denford, *Canad. J. Bot.* 52:751, 1974. Yet another widely distributed intrapopulational form in North America, often sympatric with a number of other forms, especially forma *coactilis*, forma *adenotricha*, and forma *stipitata*. Both diploid and tetraploid counts were reported by the authors.
- A. uva-ursi** (L.) Spreng. forma **marinensis** (Roof) Wells, stat. nov. Basionym: *A. uva-ursi* var. *marinensis* Roof, *Changing Seasons* 1(2):19–21, 1980. A narrowly endemic, tetraploid form from Pt. Reyes ($n=26$, unpublished meiotic count). Reportedly has basal burl; may be sympatric with forma *coactilis* which is very similar, but forma *coactilis* lacks lignotubers.
- A. uva-ursi* (L.) Spreng. subsp. *monoensis* Roof, *Changing Seasons* 1(3):7–9, 1980, from the Sierra Nevada, is not significantly different in its minutely glandular indument from forma *adenotricha* and has a similar somatic number of $2n=26$ (diploid level, unpublished count by Wells on material from Tilden Botanical Garden, Berkeley). Closely resembles Rocky Mountain material of forma *adenotricha* (also diploid) and should be reduced to synonymy with it.
- A. uva-ursi** (L.) Spreng. forma **stipitata** (Packer & Denford) Wells, stat. nov. Basionym: *A. uva-ursi* subsp. *stipitata* Packer & Denford, *Canad. J. Bot.* 52:750, 1974. A consistently tetraploid form with indument solely of stipitate glands, but occurs as intrapopulational morph with forma *longipilosa*, forma *coactilis*, forma *adenotricha*, etc., only in the far west. None of this intrapopulational variation deserves recognition at a rank higher than form.
- A. uva-ursi** (L.) Spreng. forma **suborbiculata** (W. Knight) Wells, stat. nov. Basionym: *A. uva-ursi* var. *suborbiculata* W. Knight, *Four Seasons* 7(2):31–32, 1984. Another population from San Bruno Mountain, San Francisco that is known to horticulturists in the Bay Area by the sobriquet “miniature”, distinguished mainly by the rather round leaves and incipient lignotubers (documented crown-sprouter after recent fire; cf. *A. × pacifica*).

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ANNOUNCEMENTS

NEW PUBLICATIONS

HUMPHREY, R. R., *90 years and 535 miles: Vegetation changes along the Mexican border*, University of New Mexico Press, Albuquerque, New Mexico 87131, 1987, v, [i], 448 pp., illus., ISBN 0-8263-0945-3 (hardbound), price unknown. [A fascinating then-and-now photographic comparison of the 535 changing miles of vegetation along the 205 markers designating the U.S.-Mexican boundary from El Paso, Texas, to San Luis (by Yuma), Arizona; changes esp. evident in the Chihuahuan Desert, the semi-desert grassland, and the Sonoran Desert, with “no life-form or appreciable taxonomic changes along the largely ungrazed 60% of the boundary” east of El Paso (p. 430).]

MASON, C. T., JR. and P. B. MASON, *A handbook of Mexican roadside flora*, University of Arizona Press, 1615 E. Speedway, Tucson, Arizona 85719, 30 Oct 1987, [iv], 380 pp., illus., ISBN 0-8165-0997-2 (paperbound), \$19.95. [Some 200 taxa included.]